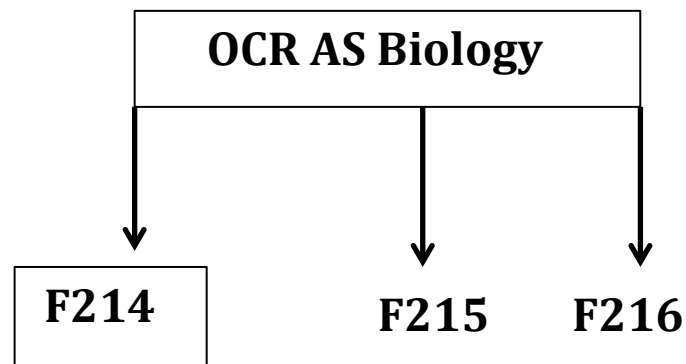


OCR A2 GCE Biology A (H421)



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Unit F214: Communication, Homeostasis and Energy	Paper code: F214																																	
1. Exam paper- Unit F214: Communication, Homeostasis, Energy 8 th June 2015 – 1 hour and 15 min	15 % of Advanced GCE Biology																																	
Overview of content																																		
<ol style="list-style-type: none"> Module 1: Communication and Homeostasis Module 2: Excretion Module 3: Photosynthesis Module 4: Respiration 																																		
Overview of assessment																																		
<ol style="list-style-type: none"> The unit is assessed through a 1-hour and 15 min examination paper set and marked by OCR. The total number of marks is 60. Grades A*–E are available. Grades assessment by year: 																																		
<table border="1"> <thead> <tr> <th>Year</th> <th>Raw Marks to 90 % UMS - A*</th> <th>Raw Marks to 80 % UMS grade 'A'</th> </tr> </thead> <tbody> <tr> <td>Jan 2010</td> <td>45</td> <td>40</td> </tr> <tr> <td>Jun 2010</td> <td>47</td> <td>42</td> </tr> <tr> <td>Jan 2011</td> <td>51</td> <td>46</td> </tr> <tr> <td>Jun 2011</td> <td>45</td> <td>40</td> </tr> <tr> <td>Jan 2012</td> <td>51</td> <td>47</td> </tr> <tr> <td>Jun 2012</td> <td>49</td> <td>44</td> </tr> <tr> <td>Jan 2013</td> <td>49</td> <td>45</td> </tr> <tr> <td>Jun 2013</td> <td>50</td> <td>46</td> </tr> <tr> <td>Jun 2014</td> <td>45</td> <td>41</td> </tr> <tr> <td>Jun 2015</td> <td>?</td> <td>?</td> </tr> </tbody> </table>		Year	Raw Marks to 90 % UMS - A*	Raw Marks to 80 % UMS grade 'A'	Jan 2010	45	40	Jun 2010	47	42	Jan 2011	51	46	Jun 2011	45	40	Jan 2012	51	47	Jun 2012	49	44	Jan 2013	49	45	Jun 2013	50	46	Jun 2014	45	41	Jun 2015	?	?
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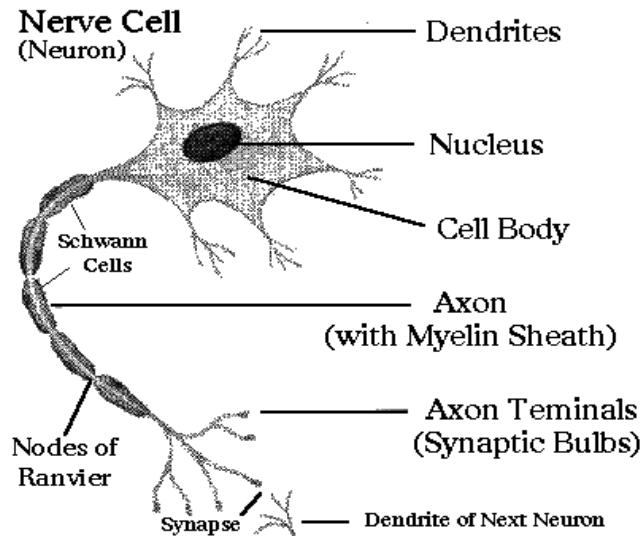
OCR A2 GCE Biology A

A2 unit F214: Communication, Homeostasis and Energy

Module 1: Communication and Homeostasis

Communication

Nerve Cell (Neuron)

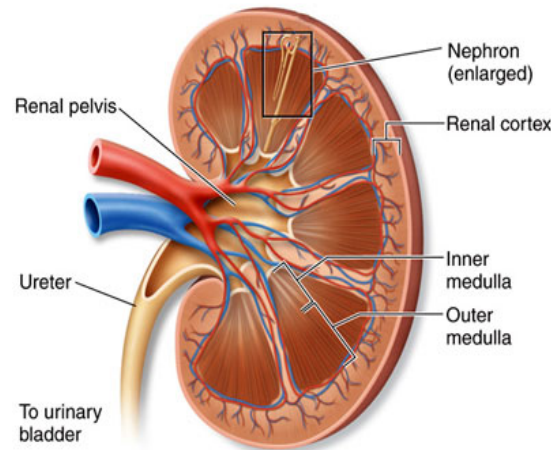


Nerves

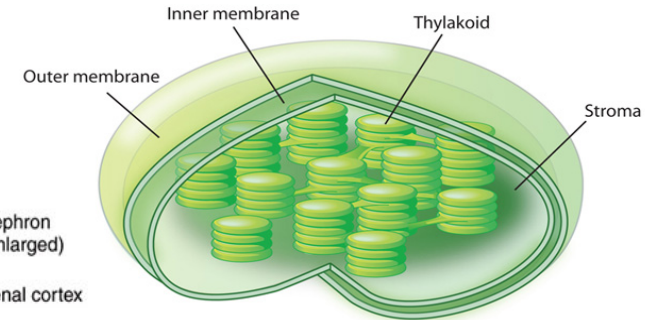
Hormones

Module 2: Excretion

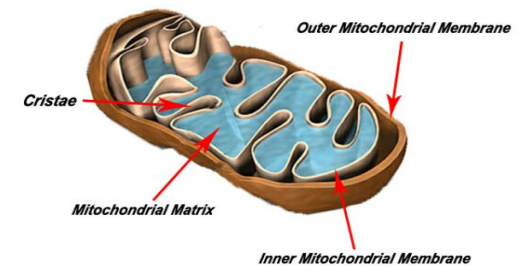
Kidney



Module 3 & 4: Photosynthesis and Respiration



The Mitochondrion



How BioChem Tuition prepares their students for F214: *Communication, Homeostasis and Energy*?

BioChem Tuition has a three-pronged strategy to attack F214 to help students attain A or A*.

1. **Detailed F214 knowledge:** The students will study the specification of OCR F214 alongside extensive practice of examination style questions to help them retain the content of the specification. The students will receive detailed F214 notes prepared by BioChem Tuition. This is supplemented by examination style questions to gauge the student's level of understanding of the topic.

Key features

- ✓ F214 specification notes.
 - ✓ F214 examination style past examination questions.
 - ✓ 1-2-1 help in understanding the key examiner points.
 - ✓ Revision notes and charts to aid revision.
2. **Practice OCR past examination papers (2001-2014):** All students will complete at least 14 years of OCR past exam papers. BioChem Tuition will provide all the past papers in printed form to the students. Candidates are required to complete past papers, which are checked and marked in light of the official examiner report and mark scheme in the presence of the student. Any mistakes will be followed up to ensure the mistakes are not repeated. The students will be shown how to maximise their marks by following our exam technique and also methods to improve comprehension for scientific questions.

Key features

- ✓ 14 years of past examination papers practice.
 - ✓ 1-2-1 help in understanding the exam technique.
 - ✓ Revisit the mistakes and practice relevant questions to ensure the mistakes are not repeated.
 - ✓ Past paper practice can be extended by solving F214 style questions from AQA, CIE and Edexcel exam boards.
3. **Mock examination practice:** Mock F214 examination practice to give student feedback on the likely grade achievable in the exams.

Key features

- ✓ Mock examination practice to simulate exam experience, which will be marked, graded and feedback on mistakes provided.

How To Achieve Grade 'A' or 'A*'
F214: *Communication, Homeostasis and Energy*

Intensive tutoring	Past papers practice (2001-2014)	Mock examination practice
1. Cover F214 Specification 2. Practice examination style questions	1. Solve F214 past papers. 2. Revisit the mistakes/revise topics	1. Solve mock examination papers to prepare for the exam

F214 Tuition Plan

Tuition Plan for F214: Communication, Homeostasis and Energy	
Stage 1: Specification Topics	Tuition time
Module 1: <i>Communication and Homeostasis</i>	12 hours
<p style="text-align: center;">1.1 Communication and homeostasis</p> <ul style="list-style-type: none"> • Neuronal and hormonal systems. • Negative/positive feedback. • Behavioral and physiological responses to maintain constant core body temperature. • Sensory and motor neurons. • Resting and action potential. • Cholinergic synapses & roles of synapses. • Endocrine system – insulin and glucagon. • Adrenal glands and second messenger system. • Type 1 and Type II diabetes. 	6 hour
<ul style="list-style-type: none"> • Practice of past examination style questions on Communication and homeostasis. 	6 hours
Module 2: <i>Excretion</i>	10 hours
<p style="text-align: center;">2.1 Excretion</p> <ul style="list-style-type: none"> • Removal of metabolic waste. • The histology and gross structure of liver. • Formation of urea. • Roles of liver in detoxification. • Kidney in detail – Nephron, PCT, Loop of Henlé, DCT and collecting duct. • Osmoregulation • Kidney failure. 	6 hours

Practice of past examination style questions on Excretion	6 hours
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Module 3&4: Photosynthesis and Respiration	12 hours
3.1 Photosynthesis <ul style="list-style-type: none"> • Chloroplast structure. • Light dependent and light independent stages of photosynthesis. • Measuring the rate of photosynthesis. • The factors affecting the photosynthesis. 	6 hours
3.2 Respiration <ul style="list-style-type: none"> • Structure of ATP and the role of coenzymes. • The structure of mitochondria and stages of respiration in detail. • Respiratory substrates – Carbohydrates, protein and fats. 	
<ul style="list-style-type: none"> • Practice of past examination style questions on Photosynthesis and Respiration. 	6 hours
Stage 2: Past paper practice	10 hours
<ul style="list-style-type: none"> • Practice of past examination papers from 2001 to 2014 relevant to F214: Communication, homeostasis/Energy <ul style="list-style-type: none"> ✓ 14 years of past examination papers practice. ✓ 1-2-1 help in understanding the exam technique. ✓ Revisit the mistakes and practice relevant questions to ensure the mistakes are not repeated. ✓ Past paper practice can be extended by solving F214 style questions from other exam boards such as AQA, CIE and Edexcel. 	10 hours

Stage 3: <i>Mock examination practice</i>	4 hours
<ul style="list-style-type: none">• Mock examination practice to simulate exam experience, which will be marked, graded and feedback on mistakes provided by BioChem Tutors.	4 hours